

REMARKS

Claims 29, 34, 39 - 41, 46, 51 - 56 are pending. Claims 30 - 33, 36 - 38, 42 - 45, and 47 - 50 have been cancelled. Claims 53 - 56 have been added. Claims 29, 34, 39 - 41, 46, and 51 - 52 have been amended. Reexamination and reconsideration of this application are respectfully requested.

In the December 22, 2004 Office Action, the Examiner withdrew the finality of the last Office Action. The Examiner rejected claims 29 - 52 under 35 U.S.C. §103(a) as being anticipated by U.S. Patent No. 6,363,160 to Bradski et al. ("the Bradski reference"). These rejections are respectfully traversed in so far as applicable to the presently pending claims.

Independent claim 52 recites:

A method to calibrate a tracking system to determine if an image frame has an established number of test windows that meet hue, saturation, and value amounts or ranges, and then to track an object within the image frame, comprising:

- converting the image frame from red-green-blue pixel information to a hue-saturation-value (HSV) array of pixels;
- thresholding the HSV array of pixels to create a thresholded HSV array of pixels;
- setting the established number of test windows needed within the image frame for the calibration to be successful;**
- establishing an initial test window in the thresholded HSV array of pixels to create an initial test HSV array of pixels;
- (a) determining whether the initial test HSV array of pixels has acceptable hue, saturation, and value amounts and ranges for the tracking system;
- (b) storing the initial test HSV array of pixels in a memory if the initial test HSV array of pixels has the acceptable hue, saturation, and value amounts and ranges;**
- (c) decrementing the established number of test windows;
- repeating limitations (a), (b), and (c) for succeeding test windows until the established number of test windows is zero, wherein any test HSV array of pixels that is stored is combined with existing HSV array of pixels in the memory to create a combined test HSV array of pixels; and**

determining whether the combined test HSV array of pixels has acceptable values and ranges for hue and saturation; and creating a pixel classification map for the image frame if the combined test HSV array or pixels has acceptable values and ranges for hue and saturation.

The Bradski reference does not disclose, teach, or suggest the method of claim

53. The Examiner states that the Bradski reference discloses that tracking data such as windows parameters are determined/adjusted and a search window having the largest connected region of a probability distribution and the greatest probability distribution is selected. (*Office Action, page 4*). The Examiner further states that Bradski discloses the claim limitation relating to the selection of a test HSV array of pixels by comparing the hue and saturation mean and standard deviations with the predetermined parameter values. The Examiner further states that it would be obvious to use the optimum ranges for the mean and standard deviations of the hue or saturation to obtain an optimum tracking accuracy or minimum tracking errors because Bradski teaches performing pattern recognition based on Gaussian or Chi-square distribution to determine a best match for the tracked object. (*Office Action, page 5*).

The applicants understand the Examiner's statements regarding Bradski, but do not believe it applies to the invention as recited in the presently pending claims. Part I of the Bradski patent describes a tracking system that returns both the location and size of the tracked portion of the image. Part II of the Bradski patent discloses recognizing patterns in the tracked portion of the image and Part III of the Bradski patent discloses a video navigations system. (*Bradski, col. 3, lines 4 - 15*). There is no discussion of a **method to calibrate a tracking system to determine if an image frame has an established number of test windows that meet hue, saturation, and value**

amounts or ranges and then to track the object if the established number of test windows exist, as is recited in claim 53. Simply, Bradski is teaching the tracking of an object, while claim 53 is claiming determining whether an image frame has a sufficient number of test windows meeting certain criteria and therefore can be used for tracking an object. Claim 53 is not claiming the tracking of the object in a video frame. The patent application describes the tracking of an object which is shown in Fig. 17 of the present application and the accompanying description in the specification. The result in Fig. 17 is similar to the result obtained in Part I of the Bradski reference, i.e., the location and the size of the tracked portion of the image is determined. In other words, Bradski does not show the calibration step, which is recited in claim 53. Accordingly, claim 53 distinguishes over the Bradski reference.

Further, the Bradski reference does not disclose, teach or suggest the highlighted limitations of claim 53. There is no disclosure of **setting the established number of test windows needed within the image frame for the calibration to be successful**. Because there is no calibration step, Bradski does not disclose that a certain number of test windows needs to be present in the image frame in order for the calibration to be successful. The Examiner states that the Bradski reference discloses test windows because a calculation window which can be the entire video frame having a shape of a rectangle and is used for tracking in video sequences. The Examiner further states that the search windows of Bradski can be made the same size as the entire video frame or window wherein the test video frames are shown in successive video sequences and the images within one of the boxes is selected. (*Office Action*, page 3). However, there is no mention that a specific number of test windows is

established for a calibration to be successful. Accordingly, claim 53 further distinguishes over the Bradski reference.

The Bradski reference does not disclose a method including **(b) storing the initial test HSV array of pixels in a memory if the initial test HSV array of pixels has the acceptable hue, saturation, and value amounts and ranges.** The Bradski reference does not disclose this intermediate step of claim 53, wherein the initial test HSV array of pixels is stored in a memory. Accordingly, claim 53 further distinguishes over the Bradski reference.

Also, the Bradski reference does not disclose **repeating limitations (a), (b), and (c) for succeeding test windows until the established number of test windows is zero, wherein any test HSV array of pixels that is stored is combined with existing HSV array of pixels in the memory to create a combined test HSV array of pixels.** There is no disclosure in the Bradski reference that pixel data for test HSV array of pixels is combined. Accordingly, claim 53 further distinguishes over the Bradski reference.

Further, the Bradski reference does not disclose **determining whether the combined test HSV array of pixels has acceptable values and ranges for hue and saturation; and creating a pixel classification map for the image frame if the combined test HSV array or pixels has acceptable values and ranges for hue and saturation.** Again, there is no discussion that the Bradski reference discloses a combined test HSV array of pixels and that the pixel classification map for the frame of image data is created if the combined test HSV array of pixels has accepted values and ranges of huse and saturation. In contrast, the Bradski reference immediately creates a

flesh-hue histogram, which is similar to the creation pixel classification map. In other words, the Bradski system never performs a calibration step. Accordingly, claim 53 further distinguishes over the Bradski reference.

Independent claim 55 recites limitations similar to claim 53. Accordingly, independent claim 55 distinguishes over the Bradski reference for reasons similar to those discussed above in regard to independent claim 53.

Applicants are very interested to hear from the Examiner if the Examiner has any suggestions on how to modify the claims to place the application in condition for allowance.

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Applicants believe that the foregoing amendments place the application in condition for allowance, and a favorable action is respectfully requested. If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles telephone number (213) 488-7100 to discuss the steps necessary for placing the application in condition for allowance should the Examiner believe that such a telephone conference would advance prosecution of the application.

Respectfully submitted,

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